



QPPD Quality-, Product- and Production- Definitions

Specification

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1 Introduction

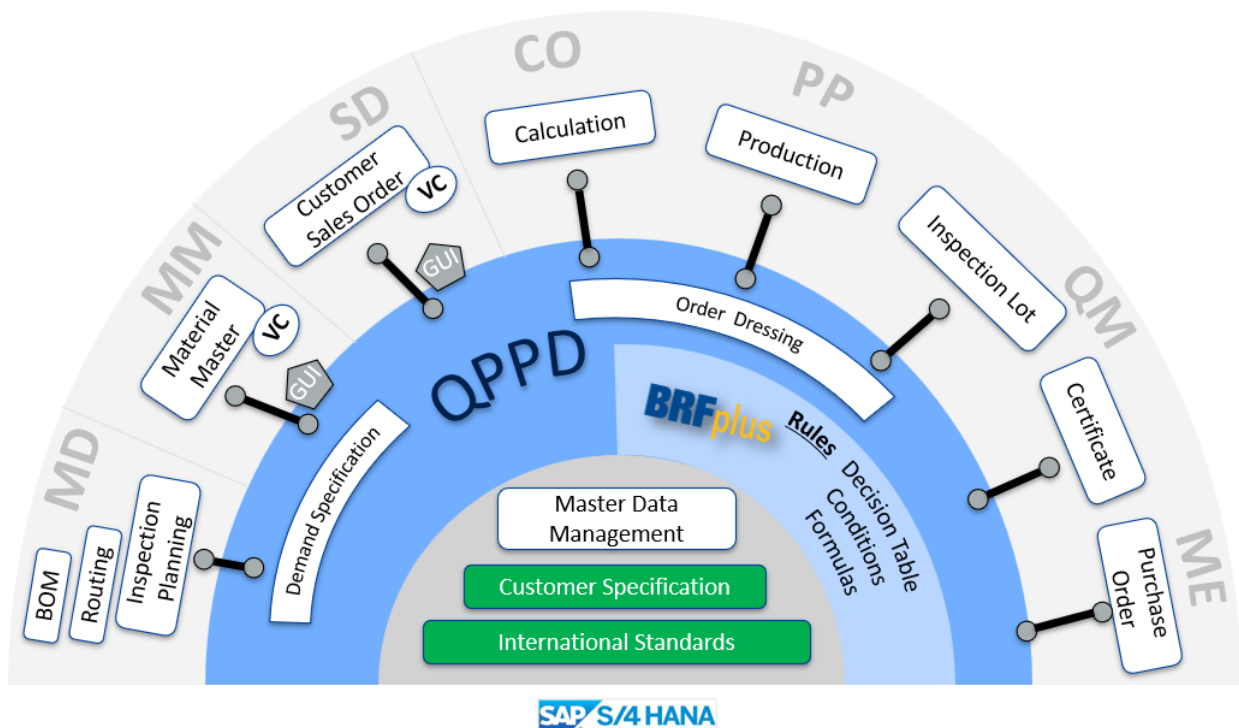
The software product Quality, Product and Production Definitions, hereinafter referred to as QPPD, is an add-on in SAP S/4 Hana. QPPD provides a framework with which customer-specific data objects can be designed. Data for the objects can be managed via a cockpit in the SAP GUI. In addition, customer-specific sets of rules can be integrated for the automatic generation and plausibility of data.

The QPPD can supplement the data documents in the SAP ECC standard, such as sales order processing, variant configuration, bills of material and routing generation, inspection lot connection and certificate creation.

The QPPD framework is divided into a basic package (CORE) and additional applications (APPs). The APPs can be installed as needed.

The application that can be used by the customer usually consists of:

- QPPD Framework
- Customer specific objects
- Customer-specific programs and extensions



Integration in SAP ECC

2 QPPD Core

This chapter describes the main functions of the QPPD CORE.

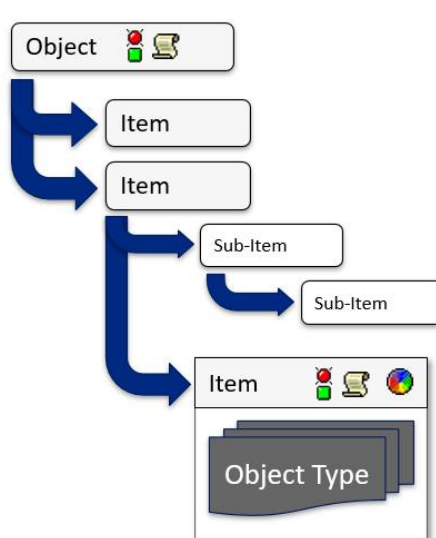
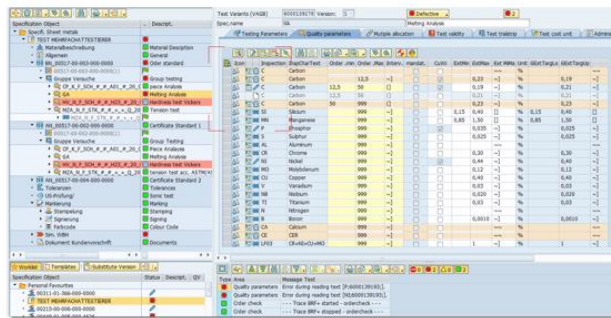
2.1 Application

Data management is performed centrally via the QPPD Cockpit, which is called up in the SAP GUI. The application is available in German, English and French.

In the cockpit, the QPPD objects are displayed as hierarchically arranged nodes in a tree navigation window. The objects consist of at least one header node and further position nodes. Item nodes can in turn contain further item categories. Structures for the objects are defined via customizing. Detailed information can be stored on each level, which is displayed grouped in object types. The object types can be arranged in compressed form if required.

A worklist represents the most recently changed objects. In addition, objects can be stored temporarily as templates. Generation processes and errors that occur during plausibility checks are stored in an error log.

Hierarchy

Item	Parameter	Value	Unit	Quality	Color	Message
1	Carbon	12.5	g	0.00	Green	
2	Carbon	12.5	g	0.00	Green	
3	Carbon	12.5	g	0.00	Green	
4	Carbon	12.5	g	0.00	Green	
5	Carbon	12.5	g	0.00	Green	
6	Carbon	12.5	g	0.00	Green	
7	Carbon	12.5	g	0.00	Green	
8	Carbon	12.5	g	0.00	Green	
9	Carbon	12.5	g	0.00	Green	
10	Carbon	12.5	g	0.00	Green	
11	Carbon	12.5	g	0.00	Green	
12	Carbon	12.5	g	0.00	Green	
13	Carbon	12.5	g	0.00	Green	
14	Carbon	12.5	g	0.00	Green	
15	Carbon	12.5	g	0.00	Green	
16	Carbon	12.5	g	0.00	Green	
17	Carbon	12.5	g	0.00	Green	
18	Carbon	12.5	g	0.00	Green	
19	Carbon	12.5	g	0.00	Green	
20	Carbon	12.5	g	0.00	Green	

 Status
  Protocol
  Generation

2.2 Basic Functions

The following functions are provided for maintaining data on data objects:

- Selection according to different criteria
- Create, display, change, copy and delete
- Individual status management (e.g. Released, Complete, Inactive, Locked)
- Release with 4-eyes principle
- Referencing of data
- Versioning
- Recording of element values
- Acquisition of inspection specifications
- Complex recording of values with reference to other element values
- Plausibility check of data
- Framework for the generation of customer-specific data
- Search aids for value entries with conditional value entry (context check)
- Text management with generation functions
- Logging of all events and called functions

- Storage of documents (Business Document Service) with archive connection
- Display of data in the form of HTML pages
- Change documents
- Multilingualism
- Linking of data objects QPPD and SAP ECC objects
- Authorization check according to authorization profiles
- Archiving
- Followup processes (processing synchronously or asynchronously with bgRFC/qRFC)

2.3 Remote Control

QPPD offers an API with which the data objects can be managed completely without a GUI. The integration of QPPD objects from other applications is thus made possible.

2.4 Data Distribution

The objects contained in the QPPD can be distributed to other QPPD instances on other SAP systems using an integrated RFC function or a standard QPPD IDOC. The standard distribution model is taken into account, so that one or more recipients can be configured per system. This distribution can be executed automatically after saving or started manually by reports.

2.5 Follow-up processes

The QPPD offers the possibility to start follow-up processes. These allow functionally dependent objects to be updated after a change has been made to an object. These can be implemented individually for the customer. It is possible to process the subsequent processes synchronously or asynchronously with bgRFC/qRFC in parallel.

2.6 Archiving

The QPPD is integrated into the standard archiving of SAP ECC. All archiving functions are supported. In addition, further archives can be defined, such as files on the application server or other SAP systems on which QPPD is also installed. Archive versions of productive data can be created at various points in time without deleting the productive data. The data from the archives can be displayed in a separate archive cockpit. If necessary, data from the archive can be used to restore an older version. A comparison of the archive data with the current version is also offered.

2.7 Central tool for master data management

The QPPD supports the administration and maintenance of regulations, standards and other master data in the SAP logistics modules - 100% individual and highly flexible. The solution serves as a universal regulation management tool with the following features:

- Standards/ internal regulations/ external regulations
- Attach documents/ notes/ images/ texts
- Versions possible
- Automatic validity
- Inheritability/ referencing
- Simple copying Use as master data tool
- Simple management of additional master data (analogous to classification) directly in the productive system
- Assignment of QPPD numbers to existing master data
- Extension of customer master and material master by an infinite number of master data
- Conceivable also as hierarchy model

Use in all modules possible

- QM - standards
- SD - Customer specifications/delivery specifications
- PP - Production instructions
- General instructions in the company

When used in manufacturing companies such as steel, aluminum or metal processing, the QPPD offers, among other things, the advantage of minimizing characteristics in classification/VC.

3 Apps

A total of seven applications are offered for the QPPD, which can be installed additionally if required. These are described in this chapter.

3.1 Sales Document Integration (APP SD)

In the sales document, several QPPD objects can be assigned and managed on the various levels of the sales document. Via a customizable collective entry as split screen in the standard application, data for several objects of the entire document can be displayed and edited:

- Fields of the order header (VBAK)
- Fields of the order items (VBAP)
- Fields of schedule lines (VBEP)
- Variant configuration for the item
- Other QPPD objects

Information between standard SD and QPPD objects can be synchronized automatically. For example, weights, volumes or tolerances can be calculated in QPPD with individual rules and synchronized into the sales document.

Further features:

- A jump from the split screen in the standard application to the QPPD is possible.
- Creation of error logs

3.2 Generation of BOM and Routing (APP PP)

The dynamic generation of BOMs and routings in standard SAP is usually done by reference knowledge in variant configuration. The BOMs are used for costing, planned order and production order generation.

With this APP it is possible to control the generation of BOMs and routings based on data from QPPD objects. The use of multi-level BOMs and their explosion is supported.

3.3 BRF+ Connection (APP BRF+)

This app integrates the Business Rules Framework Plus (BRF+) in SAP ECC into the QPPD. This APP makes it possible to develop rules and functions in the BRF+ framework and to use them in QPPD for generation and plausibility checks. The following functions are available:

- Context-related generation of data elements, structures and tables in BRF+ based on QPPD customizing
- Call of BRF+ functions with parameter transfer from QPPD for
 - Generation of (default) values
 - Plausibility check of values and use in search helps
 - Formula calculations
 - Use of decision tables with individual condition and result fields
 - Influence of GUI functions like mandatory field, editable, visibility
- Evaluation of action for error analysis
- The BRF+ trace and the application log allow an analysis of rule calls
- Search helps for values Inputs for the element in BRF+

3.4 Material Master Integration (APP MM)

With this APP it is possible to assign and manage one or more QPPD objects to the materials on the different levels:

- Plant independent (MARa)
- Plant dependent (MARc)
- Production versions (MKAL)
- Further QPPD objects

In addition, the standard material master can be extended with QPPD views for the different levels. On these views, values from the assigned QPPD objects can be displayed and edited.

Further features

- Individual copy control from materials
- The update of the QPPD objects for the material master can be triggered by a mass generation. The status of the generation is displayed for each material master.#

3.5 Purchase Integration (APP ME)

With this APP it is possible to manage one or more QPPD objects for the order: Via a customizable collective entry in a separate object type in the standard application, data for several objects of the entire document can be displayed and edited:

- Purchasing document header (EKKO)
- Purchasing document item (EKPO)
- Other QPPD objects

3.6 Specification Comparison (APP COMP)

The specification comparison makes it possible to compare any number of objects with each other. The GUI shows the correspondences and differences of the individual values. Profiles can be used to control which set of rules is used for the comparison. The comparison can also be used via an API without GUI. Thus, the rule comparison can also be used for own applications..

3.7 Mass Data Change (APP MASS)

The APP provides another transaction /SCT/QP_MASS with its own interface, with which several objects can be changed en masse. The objects to be changed are selected via dynamic selection screens. The fields to be changed are displayed and changes can be simulated first. A necessary status change or versioning to be able to change values is automatically executed. Generation rules and plausibility checks are performed for the entire object. After confirmation of the results, the object is changed and saved.

3.8 Certificate Writing (APP CERT)

With this APP, it is possible to realize a customer-specific certificate creation, which is based on QPPD objects. Since the certificate description can be very distinctive, this APP is to be understood as a basis.

The following data objects and functions are provided::

- Management of certificate documents
- Certificate profile for controlling certificate creation
- Multilingual generation of texts
- Specification determination
- Management of inspection results
- Target / actual value comparison
- Status management and error analysis
- Dimension conversions
- Multiple attestations
- Certificate form in Adobe Forms
- Document storage of certificates in the Business Document Service
- Output functions printing, PDF generation, e-mailing with logging

-
- Worklist for open and defective certificates.

4 Customer Enhancements

QPPD provides a framework that can be used to implement customer-specific developments such as generation, testing, process optimization.

4.1 Generation Functions

With the generation functions it is possible to generate data and/or texts on an object type of a node, to generate messages at the node, to control mandatory fields, to change visibility or editability of attributes. The generation functions are implemented with ABAP classes. There the rules are mapped with one or more methods. These can optionally call BRF+ rules.

4.2 Individual Functions

Individual functions can be integrated for each object in order to realize further customer-specific logic. These functions can be selected in the context menu for an object. The QPPD provides a variety of basic functions to access the QPPD objects in the individual functions.

4.3 Generation of Info Records

Info records are customer-specific tables in which data from the QPPD objects is additionally stored. With this technique, it is also possible to precalculate aggregations for a QPPD object and store them in the tables so that they can be used in other programs. To update the data, a customer-specific ABAP class is required, which implements the filling of the table..

4.4 Business Add-Ins (BAdIs)

The QPPD provides a set of BAdIs to affect the standard QPPD process.

4.5 Application Programming Interface (API)

The QPPD offers an API with which the data objects can be managed completely without a GUI. The integration of QPPD objects from other applications is thus made possible..

4.6 Redefinition of QPPD ABAP- classes

The QPPD is almost exclusively object-oriented and consists of a large number of classes. It uses a class factory for the central initialization of instances. With customizing settings, QPPD classes can be replaced by customer-specific classes. Thus, adaptations of the QPPD standard are possible without modifications.

4.7 Warranty for New Releases

The software product QPPD is subject to constant maintenance. It is continuously extended with additional functions and adapted to the latest SAP releases. With the new developments a downward compatibility is always aimed at, however, this cannot be guaranteed completely.

SECAT supports the elimination of conflicts regarding downward compatibility. The warranty refers to the use of the QPPD framework. No warranty is given for the functionality of the customer extension in case of a release change. This means for the respective objects:

4.7.1 Generation Functions

Complete backward compatibility for calling generation methods, DDIC structures, interfaces, subsequent functions, posting of results and error messages..

4.7.2 Individual Functions

Full backward compatibility for calling the individual functions.

4.7.3 Business Add-Ins (BAdIs)

Full backward compatibility of DDIC structures, interface and processing of results.

4.7.4 Application Programming Interface (API)

Full backward compatibility of data structures, interface and processing of results. No backward compatibility for the use of the internal functions.

4.7.5 Redefinition of QPPD ABAP Classes

No guarantee of backward compatibility.

5 Performance and Memory Consumption

The performance and memory consumption depend on the structure of the QPPD objects, the number of individual data records and the number and functionality of the generation functions.

When designing the QPPD objects and customer developments, it is mandatory to consider the number of users and simultaneously loaded objects so that neither performance nor memory limits of the system are exceeded.